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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,253	09/27/2006	David Walter Branston	32860-000904/US	8079

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HARNESSE, DICKEY & PIERCE, P.L.C.  
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EXAMINER
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SUERETH, SARAH ELIZABETH

ART UNIT	PAPER NUMBER
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3749

NOTIFICATION DATE	DELIVERY MODE
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03/31/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

demailroom@hdp.com  
siemensgroup@hdp.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/540,253	<b>Applicant(s)</b> BRANSTON ET AL.	
	<b>Examiner</b> Sarah Suereth	<b>Art Unit</b> 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/22/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 recites that the temperature is "a few 100K". However, the scope of the claim is unclear, as it is not clear what temperature range is meant to be included or excluded.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,6,7,8,12-19-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright (3416870).
5. Wright discloses: using at least one electric device for changing a flame with an electric field (col. 2, lines 22-34) with electrodes (52,53); and limiting the charge carrier transport between the flame and electrodes by using an ion-conducting material (col. 2, lines 60-66).

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6. Regarding claim 6, the fuel may be a premixed gas (col. 2 lines 47-50).
7. Regarding claim 12, see Figure 2.
8. Regarding claim 8, the apparatus operates at 1700F, which is regarded as "a few K".
9. Regarding claims 13-15, the embodiment of Figure 1 includes one electrode inside the enclosure, and one outside of the enclosure.
10. Regarding claims 16-19, Figure 1 shows the electrodes at different potentials.
11. Regarding claims 20 and 21, the shape of the electrodes shown in Figure 3 is both torodial and cylindrical.
12. Regarding claim 22, the insulative layer (58) is regarded as a film (see Figure 3).
13. Regarding claim 23, there is a power source (15).
14. Regarding claim 24, DC currents were known in the art as suitable power sources (col. 1 lines 26-31)
15. Regarding claims 25 and 26, the preferred power source is an AC power source (col. 2, lines 15-16).

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 2-5,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright (3416870) in view of Camacho (5634414).

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18. Wright discloses that the electrodes could be insulated using a variety of materials (col. 2, lines 64-67), but aluminum oxide is not specifically mentioned.

19. Camacho teaches that aluminum oxide is a preferred insulator due to its properties of high heat tolerance and excellent thermal insulative properties (col. 3, lines 52-55).

20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Wright apparatus to use aluminum oxide for insulation due to its properties of high heat tolerance and thermal insulation as taught by Camacho (col. 3, lines 52-55).

21. Regarding claims 2-5, the claimed method steps are disclosed to be a direct result of choosing the claimed insulative material and the geometry of the device. As Wright discloses a similar design, and when modified by Camacho, the electrodes have the same structure, they are regarded as obviously performing the claimed method steps of limiting the conductivity by applying sufficient insulation to the electrodes.

22. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright (3416870) in view of Bakhir (5985110).

23. Wright discloses that the electrodes could be insulated using a variety of materials (col. 2, lines 64-67), but aluminum oxide is not specifically mentioned.

24. Bakhir discloses making electrodes with insulation of zirconium oxide and yttrium oxide (col. 3, lines 55-60).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Wright apparatus to use zirconium and yttrium oxide

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for insulation due to its properties of thermal insulation as taught by Bakhir (col. 3, lines 55-60).

26. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wright (3416870) in view of Hosome (5332386).

27. Wright discloses that the frequency, amplitude and phase of the electric field can be varied (Figure 5 is frequency variation, also see col. 2, line 70), but Wright does not disclose that it is varied in response to a flame oscillation sensor.

28. Hosome discloses using an oscillation sensor (28) to control the operation of a burner (see abstract).

29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Wright apparatus to use the sensor taught by Hosome to provide feedback as to the burner operation, to ensure the combustion is operating at the ideal air/fuel ratio (see abstract).

### ***Conclusion***

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Suereth whose telephone number is (571) 272-9061. The examiner can normally be reached on Tuesdays & Thursdays 8:00AM-4:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sarah Suereth/  
Examiner, Art Unit 3749

/Steven B. McAllister/  
Supervisory Patent Examiner, Art Unit 3749